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(FILE 'HOME' ENTERED AT 18:37:10 ON 16 APR 2002)

FILE 'MEDLINE, CAPLUS, BIOSIS, SCISEARCH' ENTERED AT 18:42:52 ON 16 APR 2002

L1 0 S M6P/IGF2R OR MANNOSE(W)6-PHOSPHATE/INSULIN-LIKE(W)GROWTH(W)FA
L2 617 S M6P(3A)IGF2R OR MANNOSE(W)6-PHOSPHATE(4A)INSULIN-LIKE(W)GROWT
L3 189911 S INHIBIT?(6A)PROLIFERAT? OR INDUC?(6A)APOPTOSIS
L4 0 S L1 AND L2
L5 91463 S RETINOID OR RETINOIC(W)ACID
L6 19 S L2 AND L5
L7 43 S L2 AND L3
L8 10 DUP REM L6 (9 DUPLICATES REMOVED)
L9 15 DUP REM L7 (28 DUPLICATES REMOVED)

=> d 1-10 au ti so l8

L8 ANSWER 1 OF 10 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Hanafusa T (Reprint); Yumoto Y; Nouso K; Nakatsukasa H; Onishi T; Fujikawa T; Taniyama M; Nakamura S; Uemura M; Takuma Y; Yumoto E; Higashi T; Tsuji T
TI Reduced expression of insulin-like growth factor binding protein-3 and its promoter hypermethylation in human hepatocellular carcinoma
SO CANCER LETTERS, (25 FEB 2002) Vol. 176, No. 2, pp. 149-158.
Publisher: ELSEVIER SCI IRELAND LTD, CUSTOMER RELATIONS MANAGER, BAY 15, SHANNON INDUSTRIAL ESTATE CO, CLARE, IRELAND.
ISSN: 0304-3835.

L8 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2002 ACS
AU Kang, Jing X.; Li, Yunyuan; Leaf, Alexander
TI **Mannose-6-phosphate/insulin-like growth factor-II receptor** is a receptor for **retinoic acid**
SO Proceedings of the National Academy of Sciences of the United States of America (2001), 98(26), 15393
CODEN: PNASA6; ISSN: 0027-8424

L8 ANSWER 3 OF 10 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Kang J X (Reprint); Li Y Y; Leaf A
TI **Mannose-6-phosphate/insulin-like growth factor-II receptor** is a receptor for **retinoic acid** (vol 94, pg 13671, 1997)
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (18 DEC 2001) Vol. 98, No. 26, pp. 15393-15393.
Publisher: NATL ACAD SCIENCES, 2101 CONSTITUTION AVE NW, WASHINGTON, DC 20418 USA.
ISSN: 0027-8424.

L8 ANSWER 4 OF 10 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Ikushima H; Munakata Y; Ishii T; Iwata S; Terashima M; Tanaka H; Schlossman S F; Morimoto C (Reprint)
TI Internalization of CD26 by **mannose 6-phosphate/insulin-like growth factor** II **receptor** contributes to T cell activation

SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (18 JUL 2000) Vol. 97, No. 15, pp. 8439-8444.
Publisher: NATL ACAD SCIENCES, 2101 CONSTITUTION AVE NW, WASHINGTON, DC 20418.
ISSN: 0027-8424.

L8 ANSWER 5 OF 10 MEDLINE DUPLICATE 1
AU Kang J X; Bell J; Beard R L; Chandraratna R A
TI **Mannose 6-phosphate/insulin-like growth factor** II **receptor** mediates the growth-inhibitory effects of **retinoids**.
SO CELL GROWTH AND DIFFERENTIATION, (1999 Aug) 10 (8) 591-600.
Journal code: AYH; 9100024. ISSN: 1044-9523.

L8 ANSWER 6 OF 10 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AU Killian, J. Keith; Jirtle, Randy L. (1)
TI Genomic structure of the human M6P/IGF2 receptor.
SO Mammalian Genome, (Jan., 1999) Vol. 10, No. 1, pp. 74-77.
ISSN: 0938-8990.

L8 ANSWER 7 OF 10 MEDLINE DUPLICATE 2
AU Kang J X; Bell J; Leaf A; Beard R L; Chandraratna R A
TI **Retinoic acid** alters the intracellular trafficking of the **mannose-6-phosphate/insulin-like growth factor** II **receptor** and lysosomal enzymes.
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1998 Nov 10) 95 (23) 13687-91.
Journal code: PV3; 7505876. ISSN: 0027-8424.

L8 ANSWER 8 OF 10 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Kang J X (Reprint); Li Y; Leaf A
TI **Mannose-6-phosphate/insulin-like growth factor**-II **receptor** is a novel receptor for **retinoic acid**
SO FASEB JOURNAL, (17 MAR 1998) Vol. 12, No. 4, Part 1, Supp. [S], pp. 2513-2513.
Publisher: FEDERATION AMER SOC EXP BIOL, 9650 ROCKVILLE PIKE, BETHESDA, MD
20814-3998.
ISSN: 0892-6638.

L8 ANSWER 9 OF 10 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AU Kang, J. X. (1); Li, Y.; Leaf, A.
TI **Mannose-6-phosphate/insulin-like growth factor**-II **receptor** is a novel receptor for **retinoic acid**.
SO FASEB Journal, (March 17, 1998) Vol. 12, No. 4, pp. A433.
Meeting Info.: Annual Meeting of the Professional Research Scientists on Experimental Biology 98, Part 1 San Francisco, California, USA April 18-22, 1998 Federation of American Societies for Experimental Biology . ISSN: 0892-6638.

L8 ANSWER 10 OF 10 MEDLINE DUPLICATE 3
AU Kang J X; Li Y; Leaf A
TI **Mannose-6-phosphate/insulin-like growth factor**-II **receptor** is a receptor for **retinoic acid**.
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1997 Dec 9) 94 (25) 13671-6.

Journal code: 7505876. ISSN: 0027-8424.

=> d 1-15 au ti so l9

L9 ANSWER 1 OF 15 MEDLINE DUPLICATE 1
AU Killian J K; Oka Y; Jang H S; Fu X; Waterland R A; Sohda T; Sakaguchi S; Jirtle R L
TI **Mannose 6-phosphate/insulin-like growth factor** 2 **receptor** (**M6P/IGF2R**) variants in American and Japanese populations.
SO HUMAN MUTATION, (2001) 18 (1) 25-31.
Journal code: 9215429. ISSN: 1098-1004.

L9 ANSWER 2 OF 15 MEDLINE DUPLICATE 2
AU Yang L; Tredget E E; Ghahary A
TI Activation of latent transforming growth factor-beta1 is induced by **mannose 6-phosphate/insulin-like growth factor**-II **receptor**.
SO WOUND REPAIR AND REGENERATION, (2000 Nov-Dec) 8 (6) 538-46.
Journal code: C81; 9310939. ISSN: 1067-1927.

L9 ANSWER 3 OF 15 MEDLINE DUPLICATE 3
AU Motyka B; Korbutt G; Pinkoski M J; Heibein J A; Caputo A; Hobman M; Barry M; Shostak I; Sawchuk T; Holmes C F; Gauldie J; Bleackley R C
TI **Mannose 6-phosphate/insulin-like growth factor** II **receptor** is a death receptor for granzyme B during cytotoxic T cell-**induced apoptosis**.
SO CELL, (2000 Oct 27) 103 (3) 491-500.
Journal code: CQ4. ISSN: 0092-8674.

L9 ANSWER 4 OF 15 MEDLINE DUPLICATE 4
AU Gemma A; Hosoya Y; Uematsu K; Seike M; Kurimoto F; Yoshimura A; Shibuya M; Kudoh S
TI Mutation analysis of the gene encoding the human **mannose 6-phosphate/insulin-like growth factor** 2 **receptor** (**M6P/IGF2R**) in human cell lines resistant to growth inhibition by transforming growth factor beta(1) (TGF-beta(1)).
SO LUNG CANCER, (2000 Nov) 30 (2) 91-8.
Journal code: B3U. ISSN: 0169-5002.

L9 ANSWER 5 OF 15 MEDLINE DUPLICATE 5
AU Ariazi E A; Satomi Y; Ellis M J; Haag J D; Shi W; Sattler C A; Gould M N
TI Activation of the transforming growth factor beta signaling pathway and **induction** of cytostasis and **apoptosis** in mammary carcinomas treated with the anticancer agent perillyl alcohol.
SO CANCER RESEARCH, (1999 Apr 15) 59 (8) 1917-28.
Journal code: CNF; 2984705R. ISSN: 0008-5472.

L9 ANSWER 6 OF 15 MEDLINE DUPLICATE 6
AU Crowell P L
TI Prevention and therapy of cancer by dietary monoterpenes.
SO JOURNAL OF NUTRITION, (1999 Mar) 129 (3) 775S-778S. Ref: 64
Journal code: JEV; 0404243. ISSN: 0022-3166.

L9 ANSWER 7 OF 15 SCISEARCH COPYRIGHT 2002 ISI (R)

AU Gray S G; Yakovleva T; Hartmann W; Tally M; Bakalkin G; Ekstrom T J (Reprint)
TI IGF-II enhances Trichostatin A-induced TGF beta 1 and p21(Waf1,Cip1,Sdi1) expression in Hep3B cells
SO EXPERIMENTAL CELL RESEARCH, (15 DEC 1999) Vol. 253, No. 2, pp. 618-628.
Publisher: ACADEMIC PRESS INC, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495.
ISSN: 0014-4827.

L9 ANSWER 8 OF 15 MEDLINE DUPLICATE 7
AU Kang J X; Bell J; Beard R L; Chandraratna R A
TI **Mannose 6-phosphate/insulin-like growth factor** II **receptor** mediates the growth-inhibitory effects of retinoids.
SO CELL GROWTH AND DIFFERENTIATION, (1999 Aug) 10 (8) 591-600.
Journal code: AYH; 9100024. ISSN: 1044-9523.

L9 ANSWER 9 OF 15 MEDLINE
AU Belanger J T
TI Perillyl alcohol: applications in oncology.
SO ALTERNATIVE MEDICINE REVIEW, (1998 Dec) 3 (6) 448-57. Ref: 31
Journal code: C2X; 9705340. ISSN: 1089-5159.

L9 ANSWER 10 OF 15 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Ellis M J (Reprint); Jenkins S; Hanfelt J; Redington M E; Taylor M; Leek R; Siddle K; Harris A
TI Insulin-like growth factors in human breast cancer
SO BREAST CANCER RESEARCH AND TREATMENT, (8 FEB 1998) Vol. 52, No. 1-3, pp. 175-184.
Publisher: KLUWER ACADEMIC PUBL, SPUIBOULEVARD 50, PO BOX 17, 3300 AA DORDRECHT, NETHERLANDS.
ISSN: 0167-6806.

L9 ANSWER 11 OF 15 MEDLINE DUPLICATE 8
AU Kang J X; Li Y; Leaf A
TI **Mannose-6-phosphate/insulin-like growth factor**-II **receptor** is a receptor for retinoic acid.
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1997 Dec 9) 94 (25) 13671-6.
Journal code: 7505876. ISSN: 0027-8424.

L9 ANSWER 12 OF 15 MEDLINE DUPLICATE 9
AU Ariazi E A; Gould M N
TI Identifying differential gene expression in monoterpene-treated mammary carcinomas using subtractive display.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Nov 15) 271 (46) 29286-94.
Journal code: HIV; 2985121R. ISSN: 0021-9258.

L9 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2002 ACS
AU Chen, Jinqiang; Schwartz, David A.; Young, Thayer A.; Norris, James S.; Yager, James D.
TI Identification of genes whose expression is altered during mitosuppression in livers of ethinylestradiol-treated female rats
SO Carcinogenesis (1996), 17(12), 2783-2786
CODEN: CRNGDP; ISSN: 0143-3334

L9 ANSWER 14 OF 15 MEDLINE DUPLICATE 10
AU Mills J J; Chari R S; Boyer I J; Gould M N; Jirtle R L

TI **Induction** of **apoptosis** in liver tumors by the monoterpene perillyl alcohol.
SO CANCER RESEARCH, (1995 Mar 1) 55 (5) 979-83.
Journal code: CNF; 2984705R. ISSN: 0008-5472.

L9 ANSWER 15 OF 15 MEDLINE DUPLICATE 11
AU Saperstein L A; Jirtle R L; Farouk M; Thompson H J; Chung K S; Meyers W C
TI Transforming growth factor-beta 1 and **mannose 6-phosphate/insulin-like growth factor**-II **receptor** expression during intrahepatic bile duct hyperplasia and biliary fibrosis in the rat.
SO HEPATOLOGY, (1994 Feb) 19 (2) 412-7.
Journal code: GBZ; 8302946. ISSN: 0270-9139.

=> d ab 9-15 l9

L9 ANSWER 9 OF 15 MEDLINE
AB Perillyl alcohol is a monoterpene isolated from the essential oils of lavendin, peppermint, spearmint, cherries, celery seeds, and several other plants. In animal studies it has been shown to regress pancreatic, mammary, and liver tumors, to exhibit possible application as a chemopreventative agent for colon, skin, and lung cancer, and as a chemotherapeutic agent for neuroblastoma, and prostate and colon cancer. Perillyl alcohol is active in **inducing apoptosis** in tumor cells without affecting normal cells and can revert tumor cells back to a differentiated state. Its mechanism of action is unclear, but it has actions on various cellular substances which control cell growth and differentiation. It has been shown to increase **mannose-6-phosphate/insulin-like growth factor** II **receptors**, increase tissue growth factor beta receptors, increase Bak, decrease ras protein prenylation, decrease ubiquinone synthesis, and induce Phase I and Phase II detoxification systems. Preliminary human trials have not demonstrated tumor regression at a four times daily dosage schedule. In addition, significant side-effects, mainly gastrointestinal, have been experienced.

L9 ANSWER 10 OF 15 SCISEARCH COPYRIGHT 2002 ISI (R)
AB IGF1 and IGF2 are circulating peptide hormones and locally-acting growth factors with both paracrine and autocrine functions. IGF1 and IGF2 signal through a common tyrosine kinase receptor, the insulin-like growth factor 1 receptor (IGF1R), and have mitogenic, cell survival, and insulin-like actions that are essential for embryogenesis, post-natal growth physiology, and breast development. The activities of IGF1 and 2 are tightly-regulated by a network of binding proteins and targeted degradation mechanisms. This complex regulatory system is disrupted in breast cancer, leading to excess IGF1R signaling. Evidence for this statement includes: a) breast cancers are infiltrated with IGF2 expressing stromal cells; b) mannose 6-phosphate/IGF2 receptor (**M6P/IGF2R**) is mutated in breast cancer, leading to loss of IGF2 degradation; c) IGF1R is overexpressed by malignant breast epithelial cells, and in some cases IGF1R is amplified; and d) complex changes in IGF binding protein expression occur during breast cancer progression which most likely also affect IGF1 and 2 signaling. The clinical importance of these epigenetic and genetic changes has recently been stressed by the finding that IGF1R signaling alters the apoptotic response of breast

cancer cells to genotoxic stress and, in addition, IGF1R activation sensitizes cells to estrogen by inducing phosphorylation of the estrogen receptor. As a consequence of these findings, we propose that IGF analysis of breast cancer samples should shift from prognostic studies to an evaluation of IGF ligands, receptors, and binding proteins as resistance/sensitivity markers for radiation, chemotherapy, and endocrine therapy.

L9 ANSWER 11 OF 15 MEDLINE DUPLICATE 8

AB Retinoic acid (RA) exerts diverse biological effects in the control of cell growth in embryogenesis and oncogenesis. These effects of RA are thought to be mediated by the nuclear retinoid **receptors**. **Mannose-6-phosphate** (M6P)/**insulin-like growth factor**-II (IGF-II) **receptor** is a multifunctional membrane glycoprotein that is known to bind both M6P and IGF-II and function primarily in the binding and trafficking of lysosomal enzymes, the activation of transforming growth factor-beta, and the degradation of IGF-II. M6P/IGF-II receptor has recently been implicated in fetal development and carcinogenesis. Despite the functional similarities between RA and the M6P/IGF-II receptor, no direct biochemical link has been established. Here, we show that the M6P/IGF-II receptor also binds RA with high affinity at a site that is distinct from those for M6P and IGF-II, as identified by a photoaffinity labeling technique. We also show that the binding of RA to the M6P/IGF-II receptor enhances the primary functions of this receptor. The biological consequence of the interaction appears to be the suppression of cell proliferation and/or **induction** of **apoptosis**. These findings suggest that the M6P/IGF-II receptor mediates a RA response pathway that is important in cell growth regulation. This discovery of the interaction of RA with the M6P/IGF-II receptor may have important implications for our understanding of the roles of RA and the M6P/IGF-II receptor in development, carcinogenesis, and lysosomal enzyme-related diseases.

L9 ANSWER 12 OF 15 MEDLINE DUPLICATE 9

AB Monoterpene-induced/repressed genes were identified in regressing rat mammary carcinomas treated with dietary limonene using a newly developed method termed subtractive display. The subtractive display screen identified 42 monoterpene-induced genes comprising 9 known genes and 33 unidentified genes, as well as 58 monoterpene-repressed genes comprising 1 known gene and 57 unidentified genes. Several of the identified differentially expressed genes are involved in the mitoinhibitory transforming growth factor beta signal tranduction pathway, as demonstrated by isolation of the **mannose 6-phosphate/insulin-like growth factor** II **receptor** and the transforming growth factor beta type II receptor. The monoterpene-**induced**/repressed genes indicate that **apoptosis** and differentiation act in concert to effect carcinoma regression. Apoptosis is suggested by the cloning of a marker of programmed cell death, lipocortin 1. Consistent with a differentiation/remodeling process occurring during tumor regression, subtractive display identified YWK-II and neuroligin 1. Thus far, of the cDNAs putatively identified as differentially expressed in this complex in situ carcinoma model, 5 were tested, and each one has been confirmed to be differentially expressed. Additionally, many of the identified known genes

are expressed as rare transcripts and exhibit small but significant changes in abundance. Together, these points demonstrate the unique utility of this new gene expression screen to identify altered gene expression in a complex in vivo environment.

L9 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2002 ACS
AB In this study, our goal was to identify genes whose expression in liver is altered in female F-344 rats during mitosuppression induced by 42 days of ethinylestradiol (EE) treatment (J. D. Yager et al., 1994). Northern anal. demonstrated that the mRNA levels for transforming growth factor-.beta.-1 (TGF-.beta.1) and the **mannose 6-phosphate/insulin-like growth factor** II **receptor** were significantly increased by EE treatment. Ten cDNA clones representing mRNAs whose expression was increased two- to four-fold in the mitosuppressed livers were identified by differential display. Sequence anal. revealed that one was homologous to the S-24 ribosomal protein and another to mitochondrial ATPase subunit e. The remaining clones showed no homol. to known genes in GenBank. However, the expression of clones 15, 16 and 17 was increased in HepG2 cells following treatment with doxorubicin suggesting their induction by oxidative DNA damage. These results suggest that two independent but interrelated signaling pathways, one mediated through transforming growth factor-.beta. and the other through oxidative DNA damage, may contribute to hepatic mitosuppression caused by EE, perhaps through activation of cyclin-dependent kinase inhibitors.

L9 ANSWER 14 OF 15 MEDLINE DUPLICATE 10
AB The monoterpenes d-limonene and perillyl alcohol (POH) inhibit the growth of mammary tumors. In this investigation we tested whether POH is also effective in reducing liver tumor growth. Diethylnitrosamine was used to induce liver tumors in male Fischer 344 rats. Two weeks after diethylnitrosamine exposure was discontinued, the animals were divided into POH-treated and untreated groups. The mean liver tumor weight for the POH-treated rats after 19 weeks of POH treatment was 10-fold less than that for the untreated animals. POH did not influence tumor cell proliferation but increased the apoptotic index approximately 10-fold. The mRNA levels for the **mannose 6-phosphate/insulin-like growth factor** II **receptor** and the transforming growth factor beta type I, II, and III receptors were also significantly increased in the liver tumors from the POH-treated animals when compared to the corresponding receptor mRNA levels in the normal tissue surrounding the tumors and in the tumors of untreated animals. These results demonstrate that POH does not promote the formation of liver tumors, but rather inhibits their growth by enhancing tumor cell loss through apoptosis.

L9 ANSWER 15 OF 15 MEDLINE DUPLICATE 11
AB These studies investigate the role of transforming growth factor-beta 1, a potent **inhibitor** of epithelial cell **proliferation** and stimulator of extracellular matrix biosynthesis, during intrahepatic bile duct hyperplasia and biliary fibrosis. These pathogenic responses were induced in rats by common bile duct ligation. Bile duct cell replication, measured by the bromodeoxyuridine labeling index, was significantly increased 24 hr after common bile duct ligation. This response diminished to baseline by 1 wk. Liver collagen content, determined by quantification

of hydroxyproline, was increased significantly after 1 wk of common bile duct ligation, and by 4 wk was increased by a factor of 4. Immunohistochemistry revealed low levels of TGF-beta 1 in normal intrahepatic bile duct epithelium. In contrast, the bile duct epithelium in bile duct-ligated rats stained strongly positive for transforming growth factor-beta 1 at 1 and 4 wk after ligation. These results suggest that transforming growth factor-beta 1 may play a role in both the termination of the bile duct epithelial cell proliferative response and the induction of fibrogenesis after common bile duct ligation. In addition, the **mannose 6-phosphate/ insulin-like growth factor** II **receptor** was up-regulated in hyperplastic bile duct epithelium 1 and 4 wk after ligation. Because the **mannose 6-phosphate/insulin-like growth factor**-II **receptor** has been shown to facilitate the proteolytic activation of transforming growth factor-beta 1, these results suggest that the bile duct epithelium may also be involved in the activation of transforming growth factor-beta 1.

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FILE 'MEDLINE, CAPLUS, BIOSIS, SCISEARCH' ENTERED AT 11:17:41 ON 16 APR 2002

L1 337383 S FREE(W)RADICAL OR SUPEROXIDE(W)ANION OR HEAVY(W)METAL
L2 2439360 S POLYNUCLEOTIDE OR (DNA OR NUCLEIC(W)ACID)
L3 18025 S L1 AND L2
L4 1240 S (NEOTRALIZ? OR ELIMINAT?)(8A)L1
L5 52 S L3 AND L4
L6 36 DUP REM L5 (16 DUPLICATES REMOVED)

=> d 1-36 au ti so l6

L6 ANSWER 1 OF 36 CAPLUS COPYRIGHT 2002 ACS
IN Huang, Peng; Plunkett, William K.; Feng, Li
TI Cancer therapeutics involving the administration of 2-methoxyestradiol and
an agent that increases intracellular **superoxide anion**
SO PCT Int. Appl., 91 pp.
CODEN: PIXXD2

L6 ANSWER 2 OF 36 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AU Greenberger, Joel S.
TI Protection of the esophagus from chemotherapeutic or irradiation damage by
gene therapy.
SO Official Gazette of the United States Patent and Trademark Office Patents,
(Apr. 24, 2001) Vol. 1245, No. 4, pp. No Pagination. e-file.
ISSN: 0098-1133.

L6 ANSWER 3 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Singh R K; Verma N C (Reprint); Kagiya V T
TI Effect of a water soluble derivative of alpha-tocopherol on radiation response of Saccharomyces cerevisiae
SO INDIAN JOURNAL OF BIOCHEMISTRY & BIOPHYSICS, (DEC 2001) Vol. 38, No. 6, pp. 399-405.
Publisher: NATL INST SCIENCE COMMUNICATION, DR K S KRISHNAN MARG, NEW DELHI 110 012, INDIA.
ISSN: 0301-1208.

L6 ANSWER 4 OF 36 MEDLINE
AU Myhrstad M C; Husberg C; Murphy P; Nordstrom O; Blomhoff R; Moskaug J O; Kolsto A B
TI TCF11/Nrf1 overexpression increases the intracellular glutathione level and can transactivate the gamma-glutamylcysteine synthetase (GCS) heavy subunit promoter.
SO BIOCHIMICA ET BIOPHYSICA ACTA, (2001 Jan 26) 1517 (2) 212-9.
Journal code: A0W; 0217513. ISSN: 0006-3002.

L6 ANSWER 5 OF 36 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
AU Schuller, P.; Puttmann, S.; Mucke, R.; Senner, V.; Schafer, U.; Kisters, K.; Micke, O.
TI From the radiolysis of water to the role of trace elements in radiobiology
and clinical radiation therapy: Following a logical chain

SO Trace Elem. Electrolytes (2001), 18(4), 186-192
CODEN: TEELEO; ISSN: 0946-2104

L6 ANSWER 6 OF 36 MEDLINE DUPLICATE 2
AU Ren H; Ji Q; Liu Y; Ru B
TI Different protective roles in vitro of alpha- and beta-domains of growth inhibitory factor (GIF) on neuron injuries caused by oxygen **free radicals**.
SO BIOCHIMICA ET BIOPHYSICA ACTA, (2001 Dec 5) 1568 (2) 129-34.
Journal code: 0217513. ISSN: 0006-3002.

L6 ANSWER 7 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Vaya, Jacob; Aviram, Michael
TI Nutritional antioxidants: mechanisms of action, analyses of activities and
medical applications
SO Current Medicinal Chemistry: Immunology, Endocrine & Metabolic Agents (2001), 1(1), 99-117
CODEN: CMCIC8; ISSN: 1568-0134

L6 ANSWER 8 OF 36 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
AU Wan, Rong; Zhao, Gang; Chen, Jing; Zhao, Yufen
TI Research progresses of artificial **nucleic acid** cleavage agents
SO Chinese Science Bulletin (2000), 45(22), 2017-2028
CODEN: CSBUEF; ISSN: 1001-6538

L6 ANSWER 9 OF 36 MEDLINE DUPLICATE 4
AU Christen Y
TI Oxidative stress and Alzheimer disease.
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, (2000 Feb) 71 (2) 621S-629S.
Ref:
117
Journal code: 3EY; 0376027. ISSN: 0002-9165.

L6 ANSWER 10 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Jovanovic S V; Simic M G (Reprint)
TI Antioxidants in nutrition
SO ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, (JUL 2000) Vol. 899, pp. 326-334.
Publisher: NEW YORK ACAD SCIENCES, 2 EAST 63RD ST, NEW YORK, NY 10021.
ISSN: 0077-8923.

L6 ANSWER 11 OF 36 CAPLUS COPYRIGHT 2002 ACS
IN Greenberger, Joel S.
TI In vivo gene therapy for protection from ionizing irradiation or chemotherapeutic drug damage
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2

L6 ANSWER 12 OF 36 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE
5
AU Basso, Daniela; Stefani, Annalisa; Gallo, Nicoletta; Brigato, Luca; Navaglia, Filippo; Toma, Andrea; Zancanaro, Francesca; Di Mario, Francesco; De Franchis, Giuseppe; Plebani, Mario (1)
TI Polymorphonuclear oxidative burst after Helicobacter pylori water extract stimulation is not influenced by the cytotoxic genotype but indicates infection and gastritis grade.
SO Clinical Chemistry and Laboratory Medicine, (March, 1999) Vol. 37, No. 3,

pp. 223-229.
ISSN: 1434-6621.

L6 ANSWER 13 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Sun, Enlin; Lu, Qiaofa; Ding, Yanyan; Pan, Haizhu; Xie, Taoyun; Jin, Liya;
Qiu, Wenbo; Hai, Tao; Chen, Sheng; Wu, Tangchun
TI Serum superoxide dismutase activity and lipid peroxides level in workers exposed to coke oven emission
SO Gongye Weisheng Yu Zhiyebing (1998), 24(6), 346-348
CODEN: GWZHEW; ISSN: 1000-7164

L6 ANSWER 14 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Dias R M B; Vieira A J S C (Reprint)
TI Substituent effect on superoxide elimination from peroxyl radicals of adenine and methylated derivatives
SO JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY A-CHEMISTRY, (15 SEP 1998) Vol. 117, No. 3, pp. 217-222.
Publisher: ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE, SWITZERLAND.
ISSN: 1010-6030.

L6 ANSWER 15 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Durak I (Reprint); Karaayvaz M; Ozturk H S; Kacmaz M; Akgul H
TI Activities of **DNA** turn-over and **free radical** -metabolising enzymes and levels of peroxidation indices in human hepatic cancer tissues
SO CANCER RESEARCH THERAPY & CONTROL, (OCT 1998) Vol. 5, No. 3, pp. 195-201.
Publisher: HARWOOD ACAD PUBL GMBH, C/O STBS LTD, PO BOX 90, READING RG1 8JL, BERKS, ENGLAND.
ISSN: 1064-0525.

L6 ANSWER 16 OF 36 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AU Vannucchi, Helio (1); Moreira, Emilia A. M.; Cunha, Daniel Ferreira Da; Junqueira-Franco, Marcia V. M.; Bernardes, Monica M.; Jordao, Alceu A., Jr.
TI Role of nutrients on lipid peroxidation and antioxidant defense system.
SO Medicina (Ribeirao Preto), (Jan.-March, 1998) Vol. 31, No. 1, pp. 31-44.
ISSN: 0076-6046.

L6 ANSWER 17 OF 36 CAPLUS COPYRIGHT 2002 ACS
IN Greenberger, Joel S.
TI Protection from ionizing irradiation or chemotherapeutic drug damage by in vivo gene therapy
SO U.S., 18 pp.
CODEN: USXXAM

L6 ANSWER 18 OF 36 MEDLINE DUPLICATE 6
AU Wilson J X
TI Antioxidant defense of the brain: a role for astrocytes.
SO CANADIAN JOURNAL OF PHYSIOLOGY AND PHARMACOLOGY, (1997 Oct-Nov) 75 (10-11) 1149-63. Ref: 210
Journal code: CJM; 0372712. ISSN: 0008-4212.

L6 ANSWER 19 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU Dias R M B; Vieira A J S C (Reprint)
TI Effect of oxygen on the hydroxylation of adenine by photolytically

generated hydroxyl radical
SO JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY A-CHEMISTRY, (15 SEP 1997) Vol.
109, No. 2, pp. 133-136.
Publisher: ELSEVIER SCIENCE SA LAUSANNE, PO BOX 564, 1001 LAUSANNE, SWITZERLAND.
ISSN: 1010-6030.

L6 ANSWER 20 OF 36 MEDLINE
AU Zhang Z J; Luo H L; Li J S
TI Clinical and experimental studies on **elimination** of oxygen **free radical** of jinshuibao capsule in treating senile deficiency syndrome and its deoxyribonucleic acid damage repairing effects.
SO CHUNG-KUO CHUNG HSI I CHIEH HO TSA CHIH, (1997 Jan) 17 (1) 35-8.
Journal code: BIF; 9211576. ISSN: 1003-5370.

L6 ANSWER 21 OF 36 MEDLINE
AU Eiselt J; Racek J; Holecek V; Opatrny K
TI [Does plasmapheresis affect the production of **free radicals** and the antioxidant system?].
Ovlivnuje plazmafereza produkci volnych radikalu a antioxidacni system?.
SO CASOPIS LEKARU CESKYCH, (1996 Sep 11) 135 (17) 558-62.
Journal code: CPY; 0004743. ISSN: 0008-7335.

L6 ANSWER 22 OF 36 MEDLINE DUPLICATE 7
AU Qian W; Xie Y; Zhang B
TI Quantitative study of myocardial mitochondrial DNA4977 deletion in rheumatic heart disease and its significance.
SO CHUNG-HUA I HSUEH TSA CHIH [CHINESE MEDICAL JOURNAL], (1995 Aug) 75 (8) 473-5, 510.
Journal code: CDG; 7511141. ISSN: 0376-2491.

L6 ANSWER 23 OF 36 MEDLINE
AU Conklin P L; Last R L
TI Differential accumulation of antioxidant mRNAs in Arabidopsis thaliana exposed to ozone.
SO PLANT PHYSIOLOGY, (1995 Sep) 109 (1) 203-12.
Journal code: P98; 0401224. ISSN: 0032-0889.

L6 ANSWER 24 OF 36 MEDLINE DUPLICATE 8
AU Larsen C J
TI [The BCL2 gene, prototype of a gene family that controls programmed cell death (apoptosis)].
Le gene BCL2, chef de file d'une famille de genes controlant la mort cellulaire programmee (apoptose).
SO ANNALES DE GENETIQUE, (1994) 37 (3) 121-34. Ref: 99
Journal code: 56I; 0370562. ISSN: 0003-3995.

L6 ANSWER 25 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Gray, Carla W.
TI Visualization of unshadowed **DNA** by electron microscopy
SO Methods Mol. Biol. (Totowa, N. J.) (1994), 22(Microscopy, Optical Spectroscopy, and Macroscopic Techniques), 13-23
CODEN: MMBIED; ISSN: 1064-3745

L6 ANSWER 26 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU FREEMAN C D; NICOLAU D P; BELLIVEAU P P; NIGHTINGALE C H (Reprint)
TI LOMEFLOXACIN CLINICAL PHARMACOKINETICS
SO CLINICAL PHARMACOKINETICS, (JUL 1993) Vol. 25, No. 1, pp. 6-19.

ISSN: 0312-5963.

L6 ANSWER 27 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Sies, Helmut; Murphy, Michael E.; Di Mascio, Paolo; Stahl, Wilhelm
TI Tocopherols, carotenoids and the glutathione system
SO Lipid-Soluble Antioxid. (1992), 160-5. Editor(s): Ong, Augustine S. H.; Packer, Lester. Publisher: Birkhaeuser, Basel, Switz.
CODEN: 58QGAF

L6 ANSWER 28 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Yu, Shuxun; Huang, Zhengmao; Jiang, Ruiyun; Yuan, Rihong; Nei, Xianzhou; Su, Zhusheng; Xu, Jiuwei
TI Researches on the biochemical mechanism of high consistent yield of short season cotton Zhongmiansuo 16
SO Zhongguo Nongye Kexue (Beijing) (1992), 25(5), 24-30
CODEN: CKNYAR; ISSN: 0578-1752

L6 ANSWER 29 OF 36 MEDLINE
AU Sies H; Stahl W; Sundquist A R
TI Antioxidant functions of vitamins. Vitamins E and C, beta-carotene, and other carotenoids.
SO ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, (1992 Sep 30) 669 7-20. Ref: 80
Journal code: 5NM; 7506858. ISSN: 0077-8923.

L6 ANSWER 30 OF 36 MEDLINE
AU Di Mascio P; Murphy M E; Sies H
TI Antioxidant defense systems: the role of carotenoids, tocopherols, and thiols.
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, (1991 Jan) 53 (1 Suppl) 194S-200S.
Ref: 52
Journal code: 3EY; 0376027. ISSN: 0002-9165.

L6 ANSWER 31 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU DIMASCIO P; MURPHY M E; SIES H (Reprint)
TI ANTIOXIDANT DEFENSE SYSTEMS - THE ROLE OF CAROTENOIDS, TOCOPHEROLS, AND THIOLS
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, (1991) Vol. 53, No. 1, pp. S194-S200.

L6 ANSWER 32 OF 36 MEDLINE DUPLICATE 9
AU Garrison W M
TI Comparative **free-radical** chemistry in the radiolytic deamination and dephosphorylation of bio-organic molecules. I. Oxygen-free solutions.
SO FREE RADICAL BIOLOGY AND MEDICINE, (1989) 6 (3) 285-8.
Journal code: FRE; 8709159. ISSN: 0891-5849.

L6 ANSWER 33 OF 36 MEDLINE DUPLICATE 10
AU Cederberg H; Ramel C
TI Modifications of the effect of bleomycin in the somatic mutation and recombination test in Drosophila melanogaster.
SO MUTATION RESEARCH, (1989 Sep) 214 (1) 69-80.
Journal code: NNA; 0400763. ISSN: 0027-5107.

L6 ANSWER 34 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Garrison, W. M.
TI Reaction analogs in the radiation-induced deamination and

dephosphorylation of bio-organic molecules: oxygen-free systems
SO Report (1987), LBL-23809; Order No. DE88000651, 11 pp. Avail.: NTIS From: Energy Res. Abstr. 1988, 13(3), Abstr. No. 6533

L6 ANSWER 35 OF 36 MEDLINE
AU Emanuel' N M
TI [Biophysical aspects of the effect of physical and chemical factors on living organisms. Protective properties of antioxidants].
Biofizicheskie aspekty deistviia fizicheskikh i khimicheskikh faktorov na zhyvye organizmy. Zashchitnye svoistva antioksidantov.
SO BIOFIZIKA, (1984 Jul-Aug) 29 (4) 706-19. Ref: 43
Journal code: A1S; 0372666. ISSN: 0006-3029.

L6 ANSWER 36 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Ryabchenko, N. I.; Tseitlin, P. I.
TI Study on radiation-induced damage of deoxyribonucleic acid (**DNA**) by the method of thermal splitting of threads. I. Analysis of local injuries in **DNA** induced by ionizing radiation
SO Radiobiologiya (1963), 3(2), 153-8

=> d au ti so ab 24-36 l6

L6 ANSWER 24 OF 36 MEDLINE DUPLICATE 8
AU Larsen C J
TI [The BCL2 gene, prototype of a gene family that controls programmed cell death (apoptosis)].
Le gene BCL2, chef de file d'une famille de genes controlant la mort cellulaire programmee (apoptose).
SO ANNALES DE GENETIQUE, (1994) 37 (3) 121-34. Ref: 99
Journal code: 56I; 0370562. ISSN: 0003-3995.
AB The BCL2 gene is the most representative member of a family of genes that control cell homeostatic processes in the course of the developmental and adult life. Some members of the BCL2 family (bcl-2 alpha, bcl-xL) inhibit apoptosis, whereas some other (Bax, Bclxs) induce it. The biological activity of these proteins is dictated by: 1) their capacity to be integrated in specific membranes of the cytoplasm; 2) their ability to homo- or hetero-dimerize, due to the presence of two highly conserved domains which are a signature of this gene family. The bcl-2 protein exhibits two main biochemical properties: it acts in an antioxidant metabolic pathway aimed at **eliminating** oxygene **free radicals** that induce lesions in **DNA**, lipids and proteins; it modulates intracellular Ca++ fluxes. BCL2 (and presumably its congeners) interplay with other genes involved in the tight control of cell proliferation and programmed cell death (c-myc, p53). A more comprehensive view of BCL2 functions should benefit to cancer chemotherapy by improving rational approach of the antitumor drug mechanisms.

L6 ANSWER 25 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Gray, Carla W.
TI Visualization of unshadowed **DNA** by electron microscopy
SO Methods Mol. Biol. (Totowa, N. J.) (1994), 22(Microscopy, Optical Spectroscopy, and Macroscopic Techniques), 13-23
CODEN: MMBIED; ISSN: 1064-3745
AB A simple, rapid method is described in which double-stranded **DNAs** are adsorbed with little or no distortion to a film of the oligopeptide bacitracin on a glow-discharge-activated carbon. The **DNAs** can be visualized by pos. staining with uranyl acetate, which forms a smooth

trace along the **DNA** contour against a very even background. This **eliminates** the need for **heavy-metal** shadowing that would thicken the **DNA** and obscure details of the actual path traced by the **DNA** double helix. The stained specimen can be shadowed subsequently with tungsten if desired, however, to confirm the positioning of proteins bound to the **DNA**.

L6 ANSWER 26 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU FREEMAN C D; NICOLAU D P; BELLIVEAU P P; NIGHTINGALE C H (Reprint)
TI LOMEFLOXACIN CLINICAL PHARMACOKINETICS
SO CLINICAL PHARMACOKINETICS, (JUL 1993) Vol. 25, No. 1, pp. 6-19.
ISSN: 0312-5963.
AB Lomefloxacin is a quinolone antibiotic with chemical and microbiological properties similar to most commercially available agents of this class. There are differences, however, between lomefloxacin and other quinolones in activity against specific micro-organisms, a situation that is typical of most antibiotic classes.

The pharmacokinetics of lomefloxacin support once- or twice-daily dosage, depending on the pathogen or site of infection. This is a result of its relatively high serum concentrations and long half-life. The outstanding pharmacokinetic features of lomefloxacin are its high degree of tissue distribution, lack of significant metabolism (and, therefore, no competitive drug interactions with other metabolised drugs showing a common metabolic pathway), and good oral absorption. Like most fluoroquinolones, lomefloxacin can chelate with **heavy metals**. However, this interaction can be **eliminated** by administering lomefloxacin 2h before the cation-containing products. Dosage adjustments are required in patients with renal dysfunction. However, patients with liver disease do not require alterations in lomefloxacin dosage regimens.

The safety profile, lack of significant drug interactions and convenience of administration make lomefloxacin a useful agent in specific clinical settings.

L6 ANSWER 27 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Sies, Helmut; Murphy, Michael E.; Di Mascio, Paolo; Stahl, Wilhelm
TI Tocopherols, carotenoids and the glutathione system
SO Lipid-Soluble Antioxid. (1992), 160-5. Editor(s): Ong, Augustine S. H.; Packer, Lester. Publisher: Birkhaeuser, Basel, Switz.
CODEN: 58QGAF
AB A review with 39 refs. Reactive oxygen species occur in tissues and can damage **DNA**, proteins, carbohydrates, and lipids. These potentially deleterious reactions are controlled by a system of enzymic and nonenzymic antioxidants which **eliminate** pro-oxidants and scavenge **free radicals**. Tocopherols are the most abundant and efficient scavengers of hydroxyl radicals in biol. membranes.

Water-sol. antioxidants include ascorbate and cellular thiols. The ability of lipid-sol. carotenoids to quench singlet mol. oxygen may explain anticancer properties of the carotenoids, independent of their provitamin A activity. Glutathione is an important substrate for enzymic antioxidant functions and is capable of nonenzymic radical scavenging. Thiols assocd. with membrane proteins may also be important to the antioxidant system. Interactions between the thiols, tocopherols, and other compds. enhance the effectiveness of cellular antioxidative defense.

L6 ANSWER 28 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Yu, Shuxun; Huang, Zhengmao; Jiang, Ruiyun; Yuan, Rihong; Nei, Xianzhou; Su, Zhusheng; Xu, Jiuwei
TI Researches on the biochemical mechanism of high consistent yield of short season cotton Zhongmiansuo 16
SO Zhongguo Nongye Kexue (Beijing) (1992), 25(5), 24-30
CODEN: CKNYAR; ISSN: 0578-1752
AB Research was conducted on some biochem. changes of the 10th leaf of 5 short season cottons including Zhongmiansuo 16 (Gossypium hirsutum) in field and the intact and in vitro leaves of the same cottons grown in pots. Results show that the superoxide dismutase (SOD), peroxidase (POD), and catalase (CAT) in leaves of Zhongmiansuo 16 and the sibling Zhong 427 have high activities, which can **eliminate** harmful **free radicals** in leaves, and can protect organelles, **nucleic acids** and protein from damage. This leads to slow degrdn. of chlorophyll and sol. protein and to effective photosynthesis of leaves, so that the plant produces more photosynthetic assimilates, resulting in high yield and better quality cotton. The SOD, POD, and CAT in Zhongmainsuo 10 have low activities and cannot **eliminate free radicals** in leaves. Consequently, the cotton plants degenerate prematurely, lose capability of photosynthesis, and give a low yield. The SOD, POD, and CAT in Laiomain 7 have medium activities, but those in in vitro leaves are higher than those of other varieties in late season. The degrdn. rate of chlorophyll is intermediate. The protein in intact leaves of plants in the field degrades slowly, and that in in vitro leaves degrades quickly. Enzymes have a high activity in early growth stages, and stable activities in late season. It is a tall plant with high growth vigor that may be one of the causes of late maturity.

L6 ANSWER 29 OF 36 MEDLINE
AU Sies H; Stahl W; Sundquist A R
TI Antioxidant functions of vitamins. Vitamins E and C, beta-carotene, and other carotenoids.
SO ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, (1992 Sep 30) 669 7-20. Ref: 80
Journal code: 5NM; 7506858. ISSN: 0077-8923.
AB Tocopherols and tocotrienols (vitamin E) and ascorbic acid (vitamin C) as well as the carotenoids react with **free radicals**, notably peroxyl radicals, and with singlet molecular oxygen (1O2), this being the basis of their function as antioxidants. RRR-alpha-tocopherol is the major peroxyl radical scavenger in biological lipid phases such as membranes or low-density lipoproteins (LDL). L-Ascorbate is present in aqueous compartments (e.g. cytosol, plasma, and other body fluids) and can reduce the tocopheroxyl radical; it also has a number of metabolically important cofactor functions in enzyme reactions, notably hydroxylations. Upon oxidation, these micronutrients need to be regenerated in the biological setting, hence the need for further coupling to nonradical reducing systems such as glutathione/glutathione disulfide, dihydrolipoate/lipoate, or NADPH/NADP+ and NADH/NAD+. Carotenoids, notably

beta-carotene and lycopene as well as oxycarotenoids (e.g. zeaxanthin and lutein), exert antioxidant functions in lipid phases by **free-radical** or 1O2 quenching. There are pronounced differences in tissue carotenoid patterns, extending also to the distribution between the all-trans and various cis isomers of the respective carotenoids. Antioxidant functions are associated with lowering **DNA** damage, malignant transformation, and other parameters of cell damage in vitro as well as epidemiologically with lowered incidence of certain types of cancer and degenerative diseases, such as ischemic heart disease and cataract. They are of importance in the process of aging. Reactive oxygen species occur in tissues and cells and can damage **DNA**, proteins, carbohydrates, and lipids. These potentially deleterious reactions are controlled in part by antioxidants that **eliminate** prooxidants and scavenge **free radicals**. Their ability as antioxidants to quench radicals and 1O2 may explain some anticancer properties of the carotenoids independent of their provitamin A activity, but other functions may play a role as well. Tocopherols are the most abundant and efficient scavengers of peroxyl radicals in biological membranes. The water-soluble antioxidant vitamin C can reduce tocopheroxyl radicals directly or indirectly and thus support the antioxidant activity of vitamin E; such functions can be performed also by other appropriate reducing compounds such as glutathione (GSH) or dihydrolipoate. The biological efficacy of the antioxidants is also determined by their biokinetics.

L6 ANSWER 30 OF 36 MEDLINE
AU Di Mascio P; Murphy M E; Sies H
TI Antioxidant defense systems: the role of carotenoids, tocopherols, and thiols.
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, (1991 Jan) 53 (1 Suppl) 194S-200S.
Ref: 52
Journal code: 3EY; 0376027. ISSN: 0002-9165.
AB Reactive oxygen species occur in tissues and can damage **DNA**, proteins, carbohydrates, and lipids. These potentially deleterious reactions are controlled by a system of enzymatic and nonenzymatic antioxidants which **eliminate** prooxidants and scavenge **free radicals**. The ability of the lipid-soluble carotenoids to quench singlet molecular oxygen may explain some anticancer properties of the carotenoids, independent of their provitamin A activity.
Tocopherols are the most abundant and efficient scavengers of hydroperoxyl radicals in biological membranes. Water-soluble antioxidants include ascorbate and cellular thiols. Glutathione is an important substrate for enzymatic antioxidant functions and is capable of nonenzymatic radical scavenging. Thiols associated with membrane proteins may also be important to the antioxidant systems. Interactions between the thiols, tocopherols, and other compounds enhance the effectiveness of cellular antioxidant defense.

L6 ANSWER 31 OF 36 SCISEARCH COPYRIGHT 2002 ISI (R)
AU DIMASCIO P; MURPHY M E; SIES H (Reprint)
TI ANTIOXIDANT DEFENSE SYSTEMS - THE ROLE OF CAROTENOIDS, TOCOPHEROLS, AND THIOLS
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, (1991) Vol. 53, No. 1, pp.

S194-S200.

AB Reactive oxygen species occur in tissues and can damage **DNA**, proteins, carbohydrates, and lipids. These potentially deleterious reactions are controlled by a system of enzymatic and nonenzymatic antioxidants which **eliminate** prooxidants and scavenge **free radicals**. The ability of the lipid-soluble carotenoids to quench singlet molecular oxygen may explain some anticancer properties of the carotenoids, independent of their provitamin A activity.

Tocopherols are the most abundant and efficient scavengers of hydroperoxyl radicals in biological membranes. Water-soluble antioxidants include ascorbate and cellular thiols. Glutathione is an important substrate for enzymatic antioxidant functions and is capable of nonenzymatic radical scavenging. Thiols associated with membrane proteins may also be important to the antioxidant systems. Interactions between the thiols, tocopherols, and other compounds enhance the effectiveness of cellular antioxidant defense.

L6 ANSWER 32 OF 36 MEDLINE DUPLICATE 9

AU Garrison W M

TI Comparative **free-radical** chemistry in the radiolytic deamination and dephosphorylation of bio-organic molecules. I. Oxygen-free solutions.

SO FREE RADICAL BIOLOGY AND MEDICINE, (1989) 6 (3) 285-8.
Journal code: FRE; 8709159. ISSN: 0891-5849.

AB A wide range of experimental data is evaluated in support of the hypothesis that the reductive deamination of amino acids and peptides by eaq- and the oxidative dephosphorylation of glycol phosphates by OH in oxygen free solution are related in terms of a common **elimination** reaction involving **free-radical** intermediates of the same genre, that is, XCH(R)C(OH)R----HX + CH(R)COR where X = NH2, RCONH, and H2PO4 respectively. The proposed reaction model unifies for the first time the basic **free-radical** chemistry of N-C and PO-C bond cleavage in the radiolysis of peptides and glycol phosphates including proteins and **nucleic acids** in oxygen-free solution.

L6 ANSWER 33 OF 36 MEDLINE DUPLICATE 10

AU Cederberg H; Ramel C

TI Modifications of the effect of bleomycin in the somatic mutation and recombination test in Drosophila melanogaster.

SO MUTATION RESEARCH, (1989 Sep) 214 (1) 69-80.
Journal code: NNA; 0400763. ISSN: 0027-5107.

AB Exposure to oxygen has been implicated as an important mechanism of mutations, cancer and aging. Most data supporting this notion have been obtained in vitro, but the elaborate defense systems against oxygen stress in aerobic organisms make it difficult to extrapolate in vitro data to in vivo conditions. In the present investigation the somatic mutation and recombination test (SMART) in Drosophila with the wing spot system (Graf et al., 1984) has been used as an in vivo system to study the effect of oxygen radicals generated by bleomycin (BLM). BLM causes a dose-related increase of wing spots and this effect drastically increases by increasing oxygen in the atmosphere to 70%. Data from treatment of larvae of different ages, as well as post-treatment with oxygen, indicate that BLM can persist, presumably intercalated in **DNA**, and subsequently be

activated by oxygen to generate **free radicals**. By the use of inversion heterozygosity, which **eliminates** somatic recombination, it was shown that the majority of wing spots induced by BLM emanate from somatic recombination. A small number of flies deviated from the rest by an abnormally high frequency of BLM-induced wing spots. Preliminary results from a selection of such flies indicate that this extreme response to BLM is genetically determined. Treatment with BLM was also combined with agents known to interfere with the defense mechanisms against radicals or function as radical scavengers. Only ascorbic acid cotreatment had a modifying effect on BLM mutagenicity. The other agents did not alter or at most had a marginal effect on BLM mutagenicity. These data indicate that the defense mechanisms do not constitute a limiting factor in this case. BLM intercalates between **DNA** bases, presumably giving little time and opportunity for modifying agents to react with radicals generated in direct contact with the gene targets. No effect of BLM was observed on male germ cells by measuring loss and non-disjunction of ring-X/Y, neither in air nor in a 70% oxygen atmosphere.

L6 ANSWER 34 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Garrison, W. M.
TI Reaction analogs in the radiation-induced deamination and dephosphorylation of bio-organic molecules: oxygen-free systems
SO Report (1987), LBL-23809; Order No. DE88000651, 11 pp. Avail.: NTIS From: Energy Res. Abstr. 1988, 13(3), Abstr. No. 6533
AB The reductive deamination of .alpha.-amino acids and peptides by aq. electrons and the oxidative dephosphorylation of glycol phosphates by OH radical are shown to be related in terms of a common **elimination** reaction involving **free-radical** intermediates of the same genre. A comparison is made of main-chain cleavage and HX elimination in the radiolysis of histone and of **DNA** in O-free soln.

L6 ANSWER 35 OF 36 MEDLINE
AU Emanuel' N M
TI [Biophysical aspects of the effect of physical and chemical factors on living organisms. Protective properties of antioxidants]. Biofizicheskie aspekty deistviia fizicheskikh i khimicheskikh faktorov na zhyvye organizmy. Zashchitnye svoistva antioksidantov.
SO BIOFIZIKA, (1984 Jul-Aug) 29 (4) 706-19. Ref: 43 Journal code: A1S; 0372666. ISSN: 0006-3029.
AB The review deals with the biophysical changes of **free radical** nature, which occur in living organisms under the action of environmental physical and chemical factors, i. e. ionizing irradiation, light, thermal agents, noise, toxic chemical substances. The significance of modern physical and chemical techniques (EPR, NMR, electronic microscopy etc.) in environment monitoring system is considered. A great attention is given to the efficiency of natural and synthetic antioxidants--inhibitors of **free radical** processes in prevention and **elimination** of damages in organisms which occur under the action of the factors mentioned above.

L6 ANSWER 36 OF 36 CAPLUS COPYRIGHT 2002 ACS
AU Ryabchenko, N. I.; Tseitlin, P. I.
TI Study on radiation-induced damage of deoxyribonucleic acid (**DNA**) by the method of thermal splitting of threads. I. Analysis of local injuries in **DNA** induced by ionizing radiation
SO Radiobiologiya (1963), 3(2), 153-8
AB Calf thymus **DNA** in 0.01M Na+ was irradiated by various doses of

x-rays and then denatured by heating 15 min. at 89.degree. followed by quick cooling. Threads obtained from irradiated **DNA** were typical singlestrand structures as shown by means of the flexibility index ([.eta.]0.01M Na+/[.eta.]0.2M Na+) and the index of viscosity for temp. increase ([.eta.]70.degree./[.eta.]25.degree.) (Biofizika 8, 19-27(1963)).

No linkages between strands, resistant to thermal splitting, were formed during irradiation in native **DNA**. Ethylenediaminetetraacetic acid (EDTA) was used as a protective agent to **eliminate** the **free radicals**. At a concn. of 10-3M EDTA, no **free radicals** were present in soln. as indicated by decolorization of methylene blue. Also, in the absence of **free radicals** no thermostable linkages were found during irradiation. Breakage of **DNA** was detd. from the viscosity measurements. For the no. (fR) and frequency (.rho.R) of breaks in the single-strand **DNA** mol., an equation was derived assuming a known mol. wt. (Mo) of **DNA**: .rho.R = (2.omega.)fR/Mo where .omega. is the av. mol. wt. of the nucleotide. fR could be exptl. detd. from the relation fR = ([.eta.]o/[.eta.]R) - 1, where [.eta.]o and [.eta.]R are viscosities of single-strand structures obtained from nonirradiated and irradiated **DNA**. Frequency of breaks is proportional to dose of radiation. In the presence of EDTA during irradiation, the no. of breaks was decreased by a factor of 5.

=>

=> s mnsod or metallothionein or gamma(w)glutamyl(w)transpeptidase or gamma-gtp
L7 48236 MNSOD OR METALLOTHIONEIN OR GAMMA(W) GLUTAMYL(W) TRANSPEPTIDASE
OR GAMMA-GTP

=> s l6 and l7
L8 3 L6 AND L7

=> d 1-3 au ti so ab l8

L8 ANSWER 1 OF 3 MEDLINE
AU Ren H; Ji Q; Liu Y; Ru B
TI Different protective roles in vitro of alpha- and beta-domains of growth inhibitory factor (GIF) on neuron injuries caused by oxygen **free radicals**.
SO BIOCHIMICA ET BIOPHYSICA ACTA, (2001 Dec 5) 1568 (2) 129-34.
Journal code: 0217513. ISSN: 0006-3002.
AB It was well known that beta-amyloid (Abeta) and tau protein play an important role in pathological procedure of Alzheimer's disease (AD), a senile dementia. The growth inhibitory factor (GIF, also named **metallothionein**-3, MT-3) had been demonstrated to inhibit the outgrowth of cortex neurons in the medium with extract of the AD patient brain. In our experiments, it was found that the neurons of cortex and the PC12 (pheochromocytoma) cells could be protected from the cytotoxicity of beta-amyloid 25-35 in presence of GIF and its domains. Additionally, GIF can scavenge the hydroxyl radical efficiently in CytC-VitC radical producing system and its alpha-domain shown more effective potentials than its beta-domain. The electron paramagnetic resonance spectra also show that the alpha-domain has more potential ability for **eliminating** reactive oxygen **free radicals** than its beta-domain. The results suggest that GIF could act as an efficient scavenger against **free radicals** in vitro and the alpha-domain in GIF molecule shows more potential in protecting against reactive oxygen species injury than the beta-domain.

L8 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS
IN Greenberger, Joel S.
TI In vivo gene therapy for protection from ionizing irradiation or chemotherapeutic drug damage
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2
AB A method of protecting a subject against an agent that elicits prodn. of toxic **free radicals**, **superoxide anions**, or **heavy metal** cations in the subject is disclosed which entails in vivo administration to the subject of a **polynucleotide** encoding a protein that is transiently expressed in the subject. The transiently expressed protein is capable of neutralizing or **eliminating** the toxic **free radicals**, **superoxide anions**, or **heavy metal** cations that are elicited by the agent. The method is particularly useful in preventing the development of esophagitis during treatment of lung cancer patients with ionizing radiation and/or chemotherapeutic drugs.

L8 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

IN Greenberger, Joel S.
TI Protection from ionizing irradiation or chemotherapeutic drug damage by in
vivo gene therapy
SO U.S., 18 pp.
CODEN: USXXAM
AB A method of protecting a subject against an agent that elicits prodn. of toxic **free radicals**, **superoxide anions**, or **heavy metal** cations in the subject consisting of the in vivo administration to the subject of a **polynucleotide** encoding a protein that is transiently expressed in said subject. The transiently expressed protein is capable of neutralizing or **eliminating** the toxic **free radicals**, **superoxide anions** or **heavy metal** cations that are elicited by the agent. This method is particularly useful in protecting cancer patients against the damaging effects of ionizing radiation and chemotherapeutic drugs. The encoded protein may be e.g. .gamma.-glutamyltranspeptidase, manganese superoxide dismutase, or **metallothionein**.

=> d bib 2 3 18

L8 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS
AN 1999:736507 CAPLUS
DN 131:332094
TI In vivo gene therapy for protection from ionizing irradiation or chemotherapeutic drug damage
IN Greenberger, Joel S.
PA University of Pittsburgh, USA
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9958154	A1	19991118	WO 1999-US7029	19990507
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6221848	B1	20010424	US 1998-75532	19980511
	AU 9938593	A1	19991129	AU 1999-38593	19990507
	EP 1077728	A1	20010228	EP 1999-921357	19990507
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
PRAI	US 1998-75532	A1	19980511		
	WO 1999-US7029	W	19990507		

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS
AN 1997:113840 CAPLUS
DN 126:181367

TI Protection from ionizing irradiation or chemotherapeutic drug damage by in
vivo gene therapy
IN Greenberger, Joel S.
PA University of Pittsburgh, USA
SO U.S., 18 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5599712	A	19970204	US 1993-136079	19931015

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Search Results -

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L4 and l3	69

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US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L5

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DB=USPT,PGPB; PLUR=YES; OP=AND			
L5	L4 and l3	69	L5
L4	bcl-2 or superoxide	5987	L4
L3	L2 and l1	122	L3
L2	polynucleotide or dna or nucleic adj acid	63272	L2
L1	((neutraliz$ or eliminat$) near8 (free adj radical or superoxide adj anion or heavy adj metal))	1468	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 41 through 60 of 69 returned.

41. Document ID: US 5804168 A

L5: Entry 41 of 69 File: USPT Sep 8, 1998

US-PAT-NO: 5804168
DOCUMENT-IDENTIFIER: US 5804168 A

TITLE: Pharmaceutical compositions and methods for protecting and treating sun damaged skin

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

42. Document ID: US 5792784 A

L5: Entry 42 of 69 File: USPT Aug 11, 1998

US-PAT-NO: 5792784
DOCUMENT-IDENTIFIER: US 5792784 A

TITLE: Coupling product obtained from histamine and an amino acid

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

43. Document ID: US 5731008 A

L5: Entry 43 of 69 File: USPT Mar 24, 1998

US-PAT-NO: 5731008
DOCUMENT-IDENTIFIER: US 5731008 A

TITLE: Electrically hydrolyzed salines as microbicides

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

44. Document ID: US 5714515 A

L5: Entry 44 of 69 File: USPT Feb 3, 1998

US-PAT-NO: 5714515
DOCUMENT-IDENTIFIER: US 5714515 A

TITLE: Pharmaceutical alpha-keto carboxylic acid compositions, method of making and use thereof

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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45. Document ID: US 5698583 A

L5: Entry 45 of 69 File: USPT Dec 16, 1997

US-PAT-NO: 5698583
DOCUMENT-IDENTIFIER: US 5698583 A

TITLE: Oligoelements and phospholipase A2 immuno-enhancer compositions, preparation thereof, and use thereof

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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46. Document ID: US 5674537 A

L5: Entry 46 of 69 File: USPT Oct 7, 1997

US-PAT-NO: 5674537
DOCUMENT-IDENTIFIER: US 5674537 A

TITLE: Electrolyzed saline solution containing concentrated amounts of ozone and chlorine species

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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47. Document ID: US 5670477 A

L5: Entry 47 of 69 File: USPT Sep 23, 1997

US-PAT-NO: 5670477
DOCUMENT-IDENTIFIER: US 5670477 A

TITLE: Method to enhance permeability of the blood/brain blood/nerve bariers to therapeutic agents

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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48. Document ID: US 5668117 A

L5: Entry 48 of 69 File: USPT Sep 16, 1997

US-PAT-NO: 5668117
DOCUMENT-IDENTIFIER: US 5668117 A

TITLE: Methods of treating neurological diseases and etiologically related symptomology using carbonyl trapping agents in combination with previously known medicaments

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Image | KWIC | Draw Desc

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49. Document ID: US 5667791 A

L5: Entry 49 of 69 File: USPT Sep 16, 1997

US-PAT-NO: 5667791
DOCUMENT-IDENTIFIER: US 5667791 A

TITLE: X-ray induced skin damage protective composition

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Image | KWIC | Draw Desc

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50. Document ID: US 5622848 A

L5: Entry 50 of 69 File: USPT Apr 22, 1997

US-PAT-NO: 5622848
DOCUMENT-IDENTIFIER: US 5622848 A

TITLE: Electrically hydrolyzed salines as microbiocides for in vitro treatment of contaminated fluids containing blood

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Image | KWIC | Draw Desc

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51. Document ID: US 5599712 A

L5: Entry 51 of 69 File: USPT Feb 4, 1997

US-PAT-NO: 5599712
DOCUMENT-IDENTIFIER: US 5599712 A

TITLE: Protection from ionizing irradiation or chemotherapeutic drug damage by in vivo gene therapy

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Image | KWIC | Draw Desc

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52. Document ID: US 5574063 A

L5: Entry 52 of 69 File: USPT Nov 12, 1996

US-PAT-NO: 5574063
DOCUMENT-IDENTIFIER: US 5574063 A

TITLE: Method and compositions for topical application of ascorbic acid fatty acid esters for treatment and/or prevention of skin damage

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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53. Document ID: US 5536751 A

L5: Entry 53 of 69 File: USPT Jul 16, 1996

US-PAT-NO: 5536751
DOCUMENT-IDENTIFIER: US 5536751 A

TITLE: Pharmaceutical alpha-keto carboxylic acid compositions method of making and use thereof

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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54. Document ID: US 5525621 A

L5: Entry 54 of 69 File: USPT Jun 11, 1996

US-PAT-NO: 5525621
DOCUMENT-IDENTIFIER: US 5525621 A

TITLE: Imidazole derivatives as protective agents in reperfusion injury and severe inflammatory responses

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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55. Document ID: US 5480909 A

L5: Entry 55 of 69 File: USPT Jan 2, 1996

US-PAT-NO: 5480909
DOCUMENT-IDENTIFIER: US 5480909 A

TITLE: Method for inhibiting generation of free-radicals

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

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56. Document ID: US 5462946 A

L5: Entry 56 of 69 File: USPT Oct 31, 1995

US-PAT-NO: 5462946
DOCUMENT-IDENTIFIER: US 5462946 A

TITLE: Nitroxides as protectors against oxidative stress

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

☑ 57. Document ID: US 5461080 A

L5: Entry 57 of 69 File: USPT Oct 24, 1995

US-PAT-NO: 5461080
DOCUMENT-IDENTIFIER: US 5461080 A

TITLE: Airborne protectants against oxidative tissue damage

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

☐ 58. Document ID: US 5424187 A

L5: Entry 58 of 69 File: USPT Jun 13, 1995

US-PAT-NO: 5424187
DOCUMENT-IDENTIFIER: US 5424187 A

TITLE: Method of screening for arterial chlamydial granuloma

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

☐ 59. Document ID: US 5409693 A

L5: Entry 59 of 69 File: USPT Apr 25, 1995

US-PAT-NO: 5409693
DOCUMENT-IDENTIFIER: US 5409693 A

TITLE: Method for treating and preventing sunburn and sunburn damage to the skin

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc
Image

☑ 60. Document ID: US 5334383 A

L5: Entry 60 of 69 File: USPT Aug 2, 1994

US-PAT-NO: 5334383
DOCUMENT-IDENTIFIER: US 5334383 A

TITLE: Electrically hydrolyzed salines as in vivo microbicides for treatment of cardiomyopathy and multiple sclerosis

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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